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**THE APPLICATION OF ECONOMIC INSTRUMENTS TO  
THE MANAGEMENT OF THREATENED SPECIES:  
A FISHERIES CASE STUDY IN THE GALÁPAGOS ISLANDS**

A THESIS PRESENTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF APPLIED SCIENCE (NATURAL RESOURCE ECONOMICS)

MASSEY UNIVERSITY  
PALMERSTON NORTH, NEW ZEALAND

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2007

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## ACKNOWLEDGEMENTS

I would like to acknowledge the valuable assistance of my supervisors, Professor Anton Meister and Dr Kim Hang Pham Do. In very different styles they have guided me through this process with always constructive criticism and objective comments. I would also like to thank Associate Professor John Holland for helping me put ideas on the right track at the start. I would like to acknowledge the helpful guidance from Mónica Ribadeneira. Thanks also to Cesar Viteri, Fernando Ortiz, Scott Henderson, Paula Suarez and José Galindo for sharing their work and ideas with me. My gratitude also goes to Sergio Larrea, Raúl Nuñez, Eduardo Espinoza, Mario Piu, Alex Hearn, Verónica Toral and Eduardo Abudeye for sharing their experiences and time with me. Special thanks go to María del Carmen Ramos for the eye-opening conversations also.

My gratitude also goes to the Graduate Research School and the Department of Applied and International Economics at Massey University for the recognitions and financial support provided. Thanks also to the New Zealand Association of Economists and the New Zealand Agricultural and Resource Economics Society for allowing me to present rough ideas of this project to their members.

I would also like to acknowledge the friendship and support of my colleagues and mates during this time.

Most importantly, I would like to thank my family for all their love and the various forms of support they have given me over these years (psychological, moral, financial, emotional, strategic, logistical and technical). ¡No hubiera pasado ni de la puerta de ‘Las Manitos Trabajadoras’ sin el cariño suyo!

## ABSTRACT

Under open access conditions fisheries tend to suffer from overexploitation and rent dissipation. This situation makes regulation necessary to achieve sustainability. In the Galápagos Marine Reserve, ineffective fisheries management has created a 'regulated' open access situation. The major fisheries, sea cucumber and spiny lobster, have been exploited beyond sustainable levels and catches have decreased significantly. Given the state of the resources, fisheries management in Galápagos needs to effectively limit catch and effort to sustainable levels. This research analyses the feasibility of an individual transferable quota (ITQ) scheme in Galápagos, evaluating the suitability of the context and assessing the expected economic benefits and equity implications from such a regulatory instrument.

The spiny lobster fishery is considered to be suitable for an ITQ scheme while the sea cucumber fishery is not, given that the resource is on the verge of commercial extinction, the difficulties in monitoring exports and the variability of prices. The optimal management scenario for the spiny lobster fishery, of those evaluated in this study, is an ITQ scheme where the total allowable catch is set at the maximum economic yield. This scenario resulted in the largest economic benefit and efficiency gains. Major equity implications are expected from an ITQ scheme in this fishery also. These, however, are consistent with the amount of catch that needs to be reduced in order for the fishery to operate sustainably. With this in mind, it is concluded that the Galápagos National Park Service and other stakeholders that participate in fisheries management in the archipelago should consider the adoption of an ITQ scheme to manage the spiny lobster fishery. The sea cucumber fishery on the other hand, needs to remain closed until the stock recovers.

Current challenges to more effective fisheries management are limited monitoring and enforcement and weaknesses within fishing cooperatives. An enhancement of the monitoring and enforcement component, and a strengthening of fishing cooperatives through more meaningful grassroots participation in fisheries management are necessary to improve the current situation. Complementary restrictions and policies to achieve particular socio-economic and environmental objectives will also be necessary in order to reduce potential negative impacts from an ITQ scheme.



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## ABBREVIATIONS

<b>CBFM</b>	Community-based Fisheries Management
<b>CDF</b>	Charles Darwin Foundation
<b>CITES</b>	Convention on International Trade in Endangered Species of Wild Fauna and Flora
<b>CPUE</b>	Catch per Unit of Effort
<b>COPAHISA</b>	<i>Artisanal Fishing Cooperative 'Horizontes de Isabela'</i>
<b>COPESAN</b>	<i>San Cristóbal Fishing Cooperative</i>
<b>COPEP-PROMAR</b>	<i>Fishing and Sea Products Cooperative 'San Cristóbal'</i>
<b>COPROPAG</b>	<i>Artisanal Fish Production Cooperative 'Galápagos'</i>
<b>GMR</b>	Galápagos Marine Reserve
<b>GNP</b>	Galápagos National Park Service
<b>IMA</b>	Inter-institutional Management Authority
<b>ITQ</b>	Individual Transferable Quota
<b>IUCN</b>	International Union for Conservation of Nature and Natural Resources
<b>MEY</b>	Maximum Economic Yield
<b>MSY</b>	Maximum Sustainable Yield
<b>NTZ</b>	No-take Zone
<b>PMB</b>	Participatory Management Board
<b>SLG</b>	<i>Special Regime Law for the Conservation and Sustainable Development of the Province of Galápagos, Ecuador, 1998</i>
<b>TAC</b>	Total Allowable Catch
<b>UCOOPEPGAL</b>	<i>Union of Fishing Cooperatives of Galápagos</i>
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organisation